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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,327	10/27/2003	Yin-Chun Huang	9585-0439	4865

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EXAMINER	
VO, QUANG N	

ART UNIT	PAPER NUMBER
2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/695,327	HUANG ET AL.	
	Examiner	Art Unit	
	QUANG N. VO	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 18-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 18-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/09/08 has been entered.

Response to Amendment

Applicant argues that the final rejection of this application dated January 9, 2008 was improper.

In reply, the final rejection sent out on January 9, 2008 based on Amendment – After Non-Final Rejection filed on September 17, 2007.

Applicant's arguments with respect to claims 1-13 and 18-24 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Maurer et al. (Maurer) (US 6,650,773).

With regard to claim 1, Maurer discloses a method for reducing image noise (e.g., pre-processing to remove different noises and artifact, column 2, lines 14-30) in a scanned image comprising: decreasing a color level of the scanned image by reducing a number of bits of a full color level of one or more pixels in the scanned image to form a reduced color level image (e.g., the luminance channel is bit-depth truncated (block 106), an 8-bit luminance channel may be truncated to five bits, figure 1, column 2, lines 44-51); composing a pattern (e.g., pattern 2 x 2 from down-sampling of block 110, figure 1, column 2, lines 58-65) having less color level than the full color level (column 3, lines 47-51); recombining the full color level (column 3, lines 47-51) of the one or more pixels (e.g., pattern 2x2 from down-sampling, column 2, lines 58-65) in the scanned image, by combining the reduced color level image with the pattern.

With regard to claim 2, Maurer discloses wherein the reduced color level image and the pattern are combined using a bit enhanced method (e.g., bit-depth truncation, block 106, figure 1).

With regard to claim 3, Maurer discloses wherein combining the reduced color level image with the pattern (e.g., pattern 2x2 from down-sampling, column 2, lines 58-65) restores the one or more pixels to include a same number of bits as before the color level is decreased (e.g., the reconstructed chrominance channels are interpolated to the their original resolution, column 3, lines 48-51).

With regard to claim 4, Maurer discloses wherein the pattern comprises a halftone pattern (e.g., 2x2 pattern from down-sampling, column 2, lines 58-65).

With regard to claim 5, Maurer discloses wherein the number of bits reduced from the full color level is set to an image noise level (column 2, lines 44-51).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6-13, 18-21, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer et al. (Maurer) (US 6,650,773).

With regard to claim 6, Maurer discloses a method for reducing image noise (e.g., pre-processing to remove different noises and artifact, column 2, lines 14-30) wherein the image is composed of a plurality of pixels having a scale of bits (column 2, lines 7-14), comprising: reducing a plurality of bits of the scale of each pixel in the image (e.g., bit-depth truncate, block 106, figure 1); recombining the scale of each pixel in the image, wherein recombining the scale of each pixel in the image (e.g., reconstruct luminance and chrominance channels, figure 2, column 3, lines 38-51) comprises a halftone pattern (e.g., pattern 2x2 from down-sampling, figure 1) method, wherein a pattern composed by the halftone pattern method is a matrix pattern.

Maurer differs from claim 6 in that he does not explicitly discloses wherein the row and column numbers of the matrix pattern are dependent on the number of bits reduced in the step of reducing a plurality of bits of the scale of each pixel in the image.

Maurer discloses in general, the bit depth may be truncated down about 2 bits (column 2, lines 44-51); and each chrominance channel may be down-sampling by factor of 2 by replacing 2x2 matrix of pixels by a single pixel (column 2, lines 60-64); and reconstructing the image depends on down-sampling matrix (column 3, lines 47-51).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have recognized Maurer is having teaching the row and column numbers of the matrix pattern are dependent on the number of bits reduced in the step of reducing a plurality of bits of the scale of each pixel in the image, or at least obvious to provide functional part for performing the row and column numbers of the matrix pattern are dependent on the number of bits reduced in the step of reducing a plurality of bits of the scale of each pixel in the image.

With regard to claim 7, Maurer differs from claim 7, in that he does not explicitly teach the color level of the pattern depends on the number of bits reduced from the full color level.

Maurer discloses in general, the bit depth may be truncated down about 2 bits (column 2, lines 44-51); and each chrominance channel may be down-sampling by factor of 2 by replacing 2x2 matrix of pixels by a single pixel (column 2, lines 60-64);

and reconstructing the image depends on down-sampling matrix (column 3, lines 47-51).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have recognized Maurer is having teaching the color level of the pattern depends on the number of bits reduced from the full color level, or at least obvious to provide functional part for performing the color level of the pattern depends on the number of bits reduced from the full color level.

With regard to claim 8, Maurer discloses a method for reducing image noise (e.g., pre-processing to remove different noises and artifact, column 2, lines 14-30) comprising: reducing a full image level of one or more pixels in the image by decreasing a number of bits according to the image noise (e.g., the luminance channel is bit-depth truncated…, column 2, lines 44-51); and recombining the image level of the one or more pixels in the image using the halftone pattern (e.g., figure 2, column 3, lines 37-51).

Maurer differs from claim 8, in that he does not explicitly teach composing a halftone pattern with a reduced image level corresponding to the decreased number of bits.

Maurer discloses in general, the bit depth may be truncated down about 2 bits (column 2, lines 44-51); and each chrominance channel may be down-sampling by factor of 2 by replacing 2x2 matrix of pixels by a single pixel (column 2, lines 60-64); and reconstructing the image depends on down-sampling matrix (column 3, lines 47-51).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have recognized Maurer is having teaching composing a halftone pattern with a reduced image level corresponding to the decreased number of bits, or at least obvious to provide functional part for performing composing a halftone pattern with a reduced image level corresponding to the decreased number of bits.

With regard to claim 9, Maurer discloses wherein a number of bits in the recombined image level is the same as a number of bits in the full image level (column 3, lines 47-51).

With regard to claim 10, Maurer differs from claim 10 in that he does not explicitly teach wherein the halftone pattern comprises a matrix having a number of rows equal to the decreased number of bits.

Maurer discloses in general, the bit depth may be truncated down about 2 bits (column 2, lines 44-51); and each chrominance channel may be down-sampling by factor of 2 by replacing 2x2 matrix of pixels by a single pixel (column 2, lines 60-64); and reconstructing the image depends on down-sampling matrix (column 3, lines 47-51).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have recognized Maurer is having teaching wherein the halftone pattern comprises a matrix having a number of rows equal to the decreased number of bits, or at least obvious to provide functional part for performing wherein the halftone pattern comprises a matrix having a number of rows equal to the decreased number of bits.

With regard to claim 11, Maurer discloses wherein the halftone pattern comprises a matrix having a number of column equal to the decreased number of bits (e.g., chrominance channel may be down-sampled by a factor of 2 and pattern 2x2 from down-sampling, column 2, lines 60-65).

With regard to claim 12, Maurer discloses further comprising displaying the image including the recombined image level on a computer monitor (e.g., block 160, figure 2).

With regard to claim 13, Maurer discloses further comprising filling out missing codes of the one or more pixels of the image using a bit enhance method (e.g., the interpolation may be performed by pixel replication, column 3, lines 47-51).

Referring to claim 18:

Claim 18 is the apparatus claim corresponding with method steps in claim 8. Therefore claim 18 is rejected as set forth above for claim 8.

Referring to claim 19:

Claim 19 is the apparatus claim corresponding with method steps in claim 9. Therefore claim 19 is rejected as set forth above for claim 9.

With regard to claim 20, the subject matter is similar to claims 10 and 11. Therefore claim 20 is rejected as set forth above for claims 10 and 11.

With regard to claim 21, the subject matter is similar to claim 9. Therefore claim 21 is rejected as set forth above for claim 9.

With regard to claim 22, the subject matter is similar to claim 5. Therefore claim 22 is rejected as set forth above for claim 5.

With regard to claim 23, the subject matter is similar to claim 7. Therefore claim 23 is rejected as set forth above for claim 7.

With regard to claim 24, Maurer discloses wherein the image level comprises a color level (column 2, lines 7-14).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUANG N. VO whose telephone number is (571)270-1121. The examiner can normally be reached on 7:30AM-5:00PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 5712727440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/King Y. Poon/

Supervisory Patent Examiner, Art Unit 2625

/Quang N Vo/
Examiner, Art Unit 2625